





























































# Simplified and Traditional “Paper Chart” Symbols

ECDIS can be set to display aids to navigation with either traditional “paper chart” or simplified symbols. The two symbol sets are shown below. Some ECDIS color fill the paper chart buoy shapes, but this is not required by IHO ECDIS portrayal specifications.

## Floating Marks

Paper Chart	Simplified	Simplified Symbol Name
		Cardinal buoy, north
		Cardinal buoy, east
		Cardinal buoy, south
		Cardinal buoy, west
		Default symbol for buoy (used when no defining attributes have been encoded in the ENC)
		Isolated danger buoy
		Conical lateral buoy, green
		Conical lateral buoy, red
		Can shape lateral buoy, green
		Can shape lateral buoy, red
		Installation buoy and mooring buoy
		Safe water buoy
		Special purpose buoy, spherical or barrel shaped, or default symbol for special purpose buoy
		Special purpose TSS buoy marking the starboard side of the traffic lane
		Special purpose TSS buoy marking the port side of the traffic lane
		Special purpose ice buoy or spar or pillar shaped buoy
		Super-buoy ODAS & LANBY
		Light float
		Light vessel









## Fixed Marks

Paper Chart	Simplified	Simplified Symbol Name
		Cardinal beacon, north
		Cardinal beacon, east
		Cardinal beacon, south
		Cardinal beacon, west
		Default symbol for a beacon (used when no defining attributes have been encoded in the ENC)
		Isolated danger beacon
		Major lateral beacon, red
		Major lateral beacon, green
		Minor lateral beacon, green
		Major safe water beacon
		Minor safe water beacon
		Major special purpose beacon
		Minor special purpose beacon

\* Paper chart symbols display various buoy or beacon shape symbols in conjunction with the topmark. Simplified portrayal only displays the topmark.

\*\* Several different paper chart symbols correspond to this simplified symbol.

## Day Marks

Paper Chart	Simplified	Simplified Symbol Name
		Square or rectangular daymark
		Triangular daymark, point up
		Triangular daymark, point down
		Retro reflector





































No.	INT	Description	NOAA	NGA	Other NGA	ECDIS	
Buoys and Beacons							
IALA Maritime Buoyage System, which includes Beacons → Q 130							
		Default buoy symbol if no other defining attribution is provided					Default symbol for buoy, paper chart
							Default symbol for buoy, simplified
		Default beacon symbol if no other defining attribution is provided					Default symbol for a beacon, paper chart
							Default symbol for a beacon, simplified
1		Position of buoy or beacon				ECDIS shows the position of buoys and beacons with a circle at the bottom of paper chart symbols. For simplified symbols, the position of the aid corresponds with the center of the symbol.	
Colors of Buoys and Beacon Topmarks						Supplementary national symbols: p	
Abbreviations for Colors → P							
2		Green and black (symbols filled black)					
3		Single color other than green and black					
4		Multiple colors in horizontal bands, the color sequence is from top to bottom					
5		Multiple colors in vertical or diagonal stripes, the darker color is given first					
6		Retroreflecting material					Retro reflector
Note: Retroreflecting material may be fitted to some unlit marks. Charts do not usually show it. Under IALA Recommendations, black bands will appear blue under a spotlight.							
Lighted Marks							
Marks with Fog Signals → R							
7		Lighted marks on standard charts					
8		Lighted marks on multicolored charts					

# Q Buoys, Beacons

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS																																													
Topmarks and Radar Reflectors																																																			
For Application of Topmarks within the IALA System → Q 130			For other topmarks (special purpose buoys and beacons) → Q																																																
9		IALA System buoy topmarks (beacon topmarks shown upright)				<p>Paper chart symbols for topmarks (on the left, below) are always displayed above a buoy or beacon shape symbol, as in Q 10 and Q 11.</p> <p>Simplified symbols (on the right, below) for cardinal marks, isolated dangers and safe water consist of only the topmark without the buoy shape symbol.</p> <p>Simplified symbology for marks with any other type of topmark will display only the simplified buoy or beacon shape symbol without a topmark.</p> <table><tr><td></td><td></td><td>2 cones point upward</td></tr><tr><td></td><td></td><td>2 cones point downward</td></tr><tr><td></td><td></td><td>2 cones base to base</td></tr><tr><td></td><td></td><td>2 cones point to point</td></tr><tr><td></td><td></td><td>2 spheres</td></tr><tr><td></td><td></td><td>Sphere</td></tr><tr><td></td><td></td><td>Cone point up</td></tr><tr><td></td><td></td><td>Cone point down</td></tr><tr><td></td><td></td><td>Cylinder, square, vertical rectangle</td></tr><tr><td></td><td></td><td>X-shape</td></tr><tr><td></td><td></td><td>Flag or other shape</td></tr><tr><td></td><td></td><td>Board, horizontal rectangle</td></tr><tr><td></td><td></td><td>Cube point up</td></tr><tr><td></td><td></td><td>Upright cross over a circle</td></tr><tr><td></td><td></td><td>T-shape</td></tr></table>			2 cones point upward			2 cones point downward			2 cones base to base			2 cones point to point			2 spheres			Sphere			Cone point up			Cone point down			Cylinder, square, vertical rectangle			X-shape			Flag or other shape			Board, horizontal rectangle			Cube point up			Upright cross over a circle			T-shape
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		Cube point up																																																	
		Upright cross over a circle																																																	
		T-shape																																																	
10		Beacon with topmark, color, radar reflector and designation				Beacon in general with topmark, paper chart																																													
11		Buoy with topmark, color, radar reflector and designation				Conical buoy with topmark, paper chart																																													

































Note: Radar reflectors on floating marks usually are not charted. ECDIS does not display radar reflectors on fixed or floating aids; this information is obtained by cursor pick.

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

































No.	INT	Description	NOAA	NGA	Other NGA	ECDIS		
Buoys								
Shapes of Buoys								
Features Common to Buoys and Beacons → Q 1–11								
						Paper Chart	Simplified	
20	 	Conical buoy, nun buoy, ogival buoy	 N 					Conical buoy
21	 	Can buoy or cylindrical buoy	 C 					Can buoy
22	 	Spherical buoy	 SP 					Spherical buoy
23	  	Pillar buoy	 P 					Pillar buoy
24		Spar buoy, spindle buoy	 S 					Spar buoy
25	 	Barrel buoy, tun buoy	 					Barrel buoy
26		Superbuoy	 			  		Super-buoy Lanby, super-buoy Super-buoy odas & lanby
Minor Light Floats								
30	 <i>Fl.G.3s</i> <i>Name</i>	Light float as part of IALA System				 		Light float
31	 <i>Fl.10s</i>	Light float not part of IALA System				 		Light float























# Q Buoy, Beacons

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS	Supplementary national symbols: m, n
Mooring Buoys							
Oil or Gas Installation Buoy → L							
40		Mooring buoys					Mooring buoy, can shape, paper chart Mooring buoy, barrel shape, paper chart Installation buoy and mooring buoy, simplified
41		Lighted mooring buoy (example)					Mooring buoy with light flare, barrel shape, paper chart
42		Trot, mooring buoys with ground tackle and berth numbers					Trot, mooring buoys with ground tackle and berth numbers
43		Mooring buoy with telegraphic or telephonic communication					Mooring buoy, can shape, paper chart Mooring buoy, barrel shape, paper chart Installation buoy and mooring buoy, simplified
44		Numerous moorings (example)					Small craft mooring area
45		Visitors' mooring					Availability of visitor moorings at marina is obtained by cursor pick

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS
Special Purpose Buoys						
Note: Shapes of buoys are variable. Lateral or Cardinal buoys may be used in some situations.						
						 Purpose of buoy and other information is obtained by cursor pick
50		Firing danger area (Danger Zone) buoy				  
51		Target				
52		Marker Ship				
53		Barge				
54		Degaussing Range buoy				
55		Cable buoy				
56		Spoil ground buoy				
57		Buoy marking outfall				
58	 	ODAS buoy (Ocean Data Acquisition System), data collecting buoy	 			   
59		Buoy marking wave recorder or current meter				  
60		Seaplane anchorage buoy				
61		Buoy marking traffic separation scheme				
62		Buoy marking recreation zone				
63	  <i>Al. Oc. BuY. 3s</i>	Emergency wreck marking buoy (EWMB)				

# Q Buoy, Beacons

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS
Seasonal Buoys						
70		Buoy privately maintained (example)			 (occas)  (01.04.–31.10.)	 Status as private is obtained by cursor pick
71		Seasonal buoy (example)				 Status as periodic and period start and stop dates are obtained by cursor pick
Beacons						
Supplementary national symbols: o						
Lighted Beacons → P Features Common to Beacons and Buoys → Q1–11						
80	 	Beacon in general, characteristics unknown or chart scale too small to show		 		 ?  ?  Beacon in general, paper chart
81		Beacon with color, no distinctive topmark	  			 Beacon color is obtained by cursor pick
82	  	Beacons with colors and topmarks (examples)				 Beacon color is obtained by cursor pick See note at Q 9 for information about topmarks and ECDIS simplified symbology  Beacon in general with topmark, paper chart  Major red lateral beacon, simplified  Beacon in general with topmark, paper chart  Cardinal beacon, north, simplified  Beacon in general with topmark, paper chart  Isolated danger beacon, simplified
83		Beacon on submerged rock with colors (topmark as appropriate)				 Beacon in general with topmark, paper chart  Isolated danger beacon, simplified

No.	INT		Description	NOAA	NGA	Other NGA	ECDIS	
Minor Impermanent Marks Usually in Drying Areas (Lateral Marks of Minor Channels)								
Minor Pile → F								
90	I		Stake, pole	† ○ Stake      ● Stake † ○ Pole        ● Pole	 			Minor, stake or pole beacon, paper chart
91	Port Hand	Starboard Hand	Perch, withy		 		  	Minor, stake or pole beacon, paper chart
	Y	↑						Minor red lateral beacon simplified
92	† ‡	† ‡	Withy					Minor green lateral beacon, simplified
Minor Marks, Usually on Land								
Landmarks → E								
100	⊕		Cairn	○ Cairn      ⊙ CAIRN				Conspicuous cairn
101	□ Mk		Colored or white mark					Square or rectangular day mark, paper chart
								Square or rectangular day mark, simplified
								Triangular day mark, point up, paper chart
								Triangular day mark, point up, simplified
								Triangular day mark, point down, paper chart
								Triangular day mark, point down, simplified
102.1	 W  RW   		Colored topmark (color known or unknown) with function of a beacon					
102.2	 RW  RW    —————		Painted boards with function of leading beacons					









# Q Buoys, Beacons

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS
Beacon Towers						
110		Beacon towers without and with topmarks and colors (examples)				 Beacon tower, paper chart   Beacon tower with topmarks, paper chart   Major red lateral beacon, simplified   Major green lateral beacon, simplified
111		Lattice beacon				 Lattice beacon, paper chart
Special Purpose Beacons						
Leading Lines, Clearing Lines → M						
Note: Topmarks and colors shown where scale permits.						
120		Leading beacons				 Leading beacons
121		Beacons marking a clearing line				 Beacons marking a clearing line or transit
122		Beacons marking measured distance with quoted bearings				 Beacons marking measured distance
123		Cable landing beacon (example)				 Cable landing beacon (example)
124		Refuge beacon				 Purpose as refuge or firing danger area beacon is obtained by cursor pick
125		Firing danger area beacons				
126		Notice board				 Notice board

## IALA Maritime Buoyage System

IALA International Association of Marine Aids to Navigation and Lighthouse Authorities

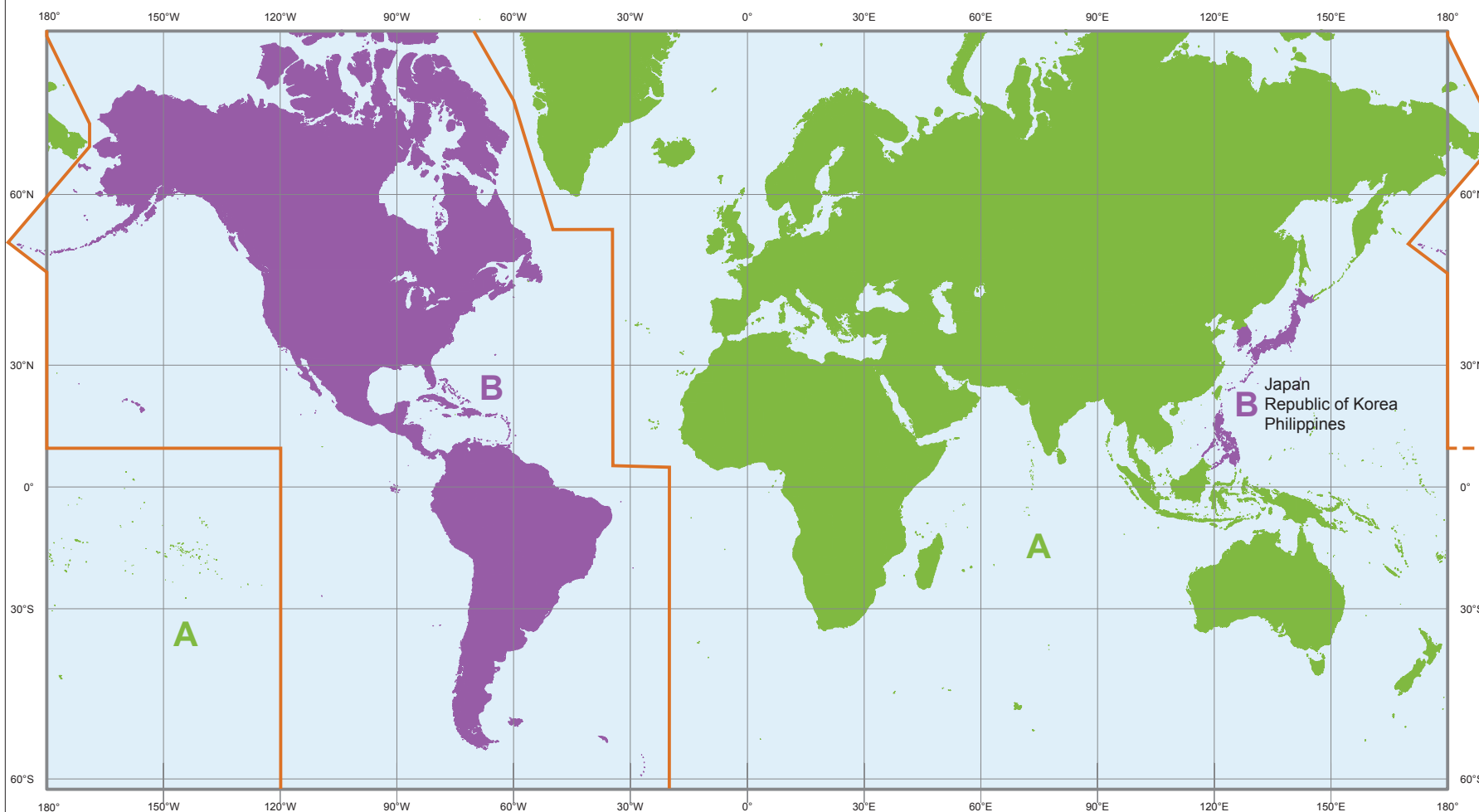
130

Where in force, the IALA System applies to all fixed and floating marks except landfall lights, leading lights and marks, sector lights and major floating lights. The standard buoy shapes are cylindrical (can) , conical , spherical , pillar , and spar , but variations may occur, for example: light floats . In the illustrations in Q 130.1, only the standard buoy shapes are used. In the case of fixed beacons (lit or unlit), only the shape of the topmark is of navigational significance. Lateral marks are generally for well-defined channels.

There are two international buoyage regions where lateral marks differ. Region A is primarily comprised of the waters surrounding Greenland, Africa, Europe, Australia and Asia (except for Japan, the Republic of Korea and the Philippines). Region B is primarily comprised of the waters surrounding North and South America, Japan, the Republic of Korea and the Philippines.

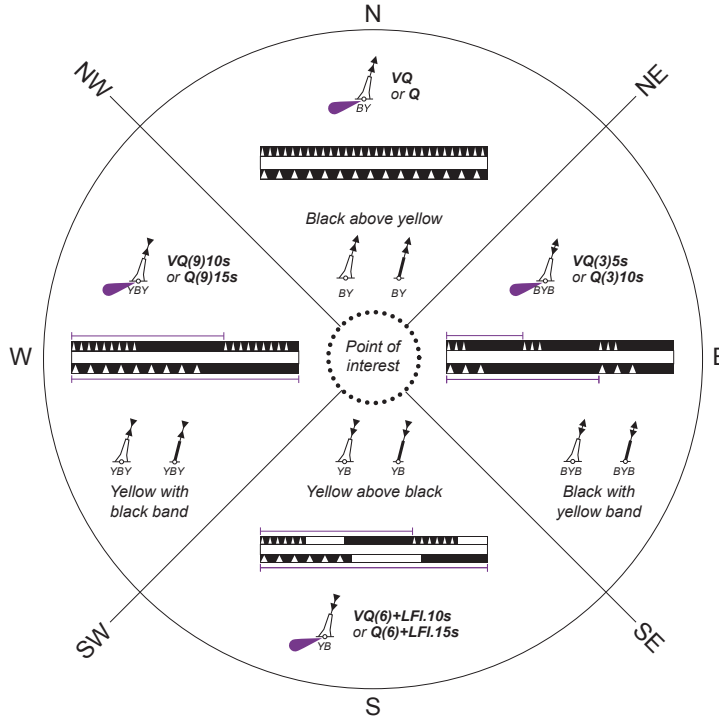
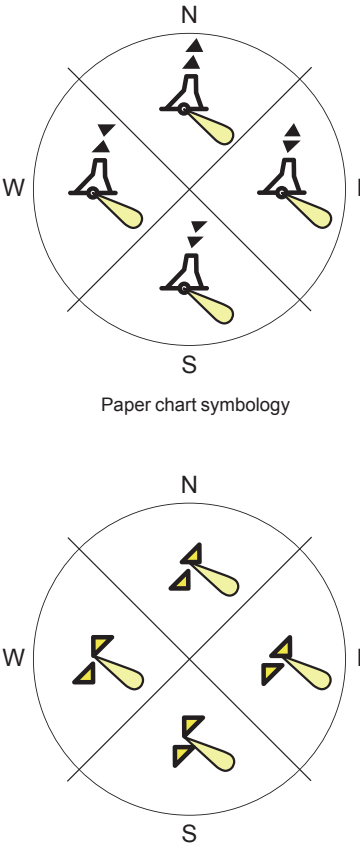
ECDIS marks the boundary between IALA regions A and B with this symbol: — A — — B — — A — — B — — A — — B — — A — — B — — A — — B —

130.1












# Q Buoy, Beacons

130.1	INT	<p>Port-hand marks are red with cylindrical topmarks (if any). If lit, light is red.</p> <p>Starboard-hand marks are green with conical topmarks (if any). If lit, light is green.</p> <p>REGION A</p>	<p>Port-hand marks are green with cylindrical topmarks (if any). If lit, light is green.</p> <p>Starboard-hand marks are red with conical topmarks (if any). If lit, light is red.</p> <p>REGION B</p>	<p>If lit, lights on port-hand and starboard-hand marks may have any rhythm specified except FI(2+1), which is used for preferred channel aids.</p> <p>All preferred channel marks have horizontal bands of color; the top color indicates the preferred channel.</p> <p>A preferred channel buoy may be a can or conical shape to indicate the preferred channel (in addition to the top color band), but may also have a pillar or spar shape.</p>
	NOAA	<p>Port-hand marks are red with cylindrical topmarks (if any). If lit, light is red.</p> <p>Starboard-hand marks are green with conical topmarks (if any). If lit, light is green.</p> <p>REGION A</p>	<p>Port-hand marks are green with cylindrical topmarks (if any). If lit, light is green.</p> <p>Starboard-hand marks are red with conical topmarks (if any). If lit, light is red.</p> <p>REGION B</p>	
130.2	Direction of Buoyage: The direction of buoyage is that taken when approaching a harbor from seaward. Along coasts, the direction is determined by buoyage authorities, normally clockwise around land masses.			
	INT	<p><b>Symbols showing direction of buoyage where it is not obvious</b></p> <div> <p>General symbol for direction of buoyage</p> </div> <div> <p>IALA Region A on multicolored charts</p> </div> <div> <p>IALA Region B on multicolored charts</p> </div>		
	ECDIS	<div> <p>General symbol for direction of buoyage</p> </div> <div> <p>IALA Region A</p> </div> <div> <p>IALA Region B</p> </div>		

No.	INT	ECDIS
130.3	<p>Cardinal Marks: indicating navigable water to the named side of the marks. In the illustration below all marks are the same in Regions A and B.</p>  <p>Topmark: 2 black cones Light: White</p> <p>The same abbreviations are used for lights on spar buoys and beacons.</p> <p>The periods 5s, 10s, and 15s may not always be charted.</p> <p>Time (seconds) 0 5 10 15 Period</p> <p>Cardinal marks are seldom used in U.S. waters and do not appear on NOAA charts, except for charts that also depict Canadian waters.</p>	 <p>Paper chart symbology</p> <p>Simplified symbology</p>

# Q BuOys, Beacons

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS	
130.4		<p>Isolated Danger Marks stationed over dangers with navigable water around them</p> <p>Body: black with red horizontal band(s)</p> <p>Topmark: 2 black spheres</p> <p>Light: white</p>					Pillar buoy with 2 spheres topmark
							Spar buoy with 2 spheres topmark
							Isolated danger buoy, simplified
130.5		<p>Safe Water Marks such as mid-channel and landfall marks</p> <p>Body: red and white vertical stripes</p> <p>Topmark (if any): red sphere</p> <p>Light: white</p>					Spherical buoy, paper chart
							Pillar buoy with sphere topmark
							Spar buoy with sphere topmark
130.6		<p>Special Marks not primarily to assist navigation but to indicate special features</p> <p>Body (shape optional): yellow*</p> <p>Topmark (if any): yellow x or upright cross</p> <p>Lights: yellow, rhythm optional*</p> <p>*in special cases yellow may be in conjunction with another color</p>					Spherical buoy, paper chart
							Can buoy
							Conical buoy
130.6		<p>Special Marks not primarily to assist navigation but to indicate special features</p> <p>Body (shape optional): yellow*</p> <p>Topmark (if any): yellow x or upright cross</p> <p>Lights: yellow, rhythm optional*</p> <p>*in special cases yellow may be in conjunction with another color</p>					Spar buoy with x-shape topmark
							Special purpose buoy, simplified

No.	INT	Description	NOAA	NGA	Other NGA	ECDIS
Supplementary National Symbols						
a		Bell buoy	 BELL	 BELL		
b		Gong buoy	 GONG	 GONG		
c		Whistle buoy	 WHIS	 WHIS		
d		Fairway buoy (red and white vertical stripe)	 RW			
e		Mid-channel buoy (red and white vertical stripe)	 RW			
f		Starboard-hand buoy (entering from seaward - US waters)	 R "2"			
g		Port-hand buoy (entering from seaward - US waters)	 G "1"  "1"			
h		Bifurcation/Junction buoys	 RG  GR			
		Isolated danger, Wreck or Obstruction buoy	 BR			
i		Fish trap (area) buoy	 Y			
j		Anchorage buoy (marks limits)	 Y			
l		Triangular shaped beacons	 R  RG Bn			
		Square shaped beacons	 G  GR Bn  W Bn  B Bn			
		Beacon, color unknown	 Bn			
o		Lighted beacon	 !	 !	 ! Bn  !	
q		Security barrier	 Security barrier			
r		Scientific mooring buoy				
s		Float (unlighted)				
t		White and blue buoy		 WBuW		